https://doi.org/10.5664/jcsm.8794

JCSM | Journal of Clinical Sleep Medicine

CASE REPORTS

# A case report of sleep terrors exacerbated by cetirizine

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Sleep terrors are a type of sleep disorder that is classified as parasomnias and is more common in children than in adults. Cetirizine is a histamine H1 antagonist that is US Food and Drug Administration approved for the treatment of allergic rhinitis and urticaria and has common adverse effects of drowsiness and headaches. We present a case of an adult man with a history of chronic sleep terror disorder and allergic rhinitis who developed worsening of his sleep terrors after initiation of cetirizine that subsequently resolved after discontinuing cetirizine and starting paroxetine.

**Keywords:** sleep terrors; cetirizine; allergic rhinitis

**Citation:** Hussain S, Aziz SG. A case report of sleep terrors exacerbated by cetirizine. *J Clin Sleep Med*. 2021;17(1):99–101.

## INTRODUCTION

Sleep terrors, also called night terrors, are a type of sleep disorder that is classified under parasomnias. The prevalence of non–rapid eye movement sleep (NREM) parasomnias in the general population varies with age, and both children and adults can have these behaviors.[1] They are more common in pediatric populations, with a prevalence of 14.7% in children 3–10 years of age.[2] The peak of prevalence was observed at age 1.5 years for sleep terrors (34.4%) and at age 10 years for sleepwalking (13.4%).[3] The prevalence of night terrors in adults ranges from 1% to 4% in the adult general population.[4] Cetirizine is a histamine H1 antagonist that is US Food and Drug Administration approved for the treatment of allergic rhinitis and urticaria. Common side effects of cetirizine include drowsiness and headaches. Sleep terrors are a very rare side effect of this medication. We present a case of a 20-year-old man who developed an acute exacerbation of his chronic sleep terrors and parasomnias after initiating cetirizine for allergic rhinitis, which subsequently improved after discontinuation of cetirizine.

## REPORT OF CASE

A 20-year-old man with a history of chronic sleep terror, allergic rhinitis, gastroesophageal reflux disease, and obesity presented for evaluation of worsening night terrors associated with sleepwalking. He has a long history of sleepwalking and night terrors since around age 12, but more recently over the past several weeks, he had been having increased frequency and intensity of his sleep terrors.

He would sleepwalk sporadically on average about once a month associated with night terrors. It could occur on consecutive nights and then not occur for several weeks. The patient's mother described that during his usual episodes, he yells and screams in his sleep, and it takes about 5 minutes for her to be able to wake him up. After awakening, he cannot recall the event. Most of his sleep terrors occurred during the first few hours of sleep, suggesting an underlying NREM-related parasomnia.

He was recently started on cetirizine for allergic rhinitis. Since then, he noticed that the episode of sleep terrors were more frequent (2–3 times per week) and were more intense. In 1 of the recent episodes, he was sleepwalking and yelling and smashed the mirror attached to the back of his door. He had several cuts to his upper and lower extremities, and there was blood on the wall and floor. His parents were unable to wake him up; thus, his father essentially had to restrain him by tackling him to the floor. He then woke up and was confused and had no recollection of the event.

The patient had a normal vaginal birth with no complications. History was negative for trauma, seizures, tobacco use, and alcohol use. There was no family history of parasomnias. His current medications included ranitidine 75 mg daily and cetirizine 10 mg daily, which he began taking 3 weeks before for allergic rhinitis.

Review of systems was negative for behavioral disturbances, sleep deprivation, excessive daytime sleepiness, seizures, snoring, postnasal drip, and restless legs syndrome.

Physical examination revealed an adult male in no distress with a body mass index of 33.5 kg/m$^2$. Nasal mucosa was erythematous with enlarged turbinate. Oral airway examination revealed a Mallampati score of IV with normal tonsils. The remainder of the physical and neurologic examination was unremarkable. The radioallergosorbent test was positive for dust mites.

Diagnostic polysomnogram revealed a sleep latency of 49 minutes and a sleep efficiency of 84.7%. The sleep architecture demonstrated 6.0% of stage 1 sleep, 68.8% of stage 2 sleep, 12.7% of stage 3 sleep, and 12.6% of stage R sleep. The apnea-hypopnea index was 0.2 events/h. The minimum oxygen desaturation was 92%. There was no evidence of snoring, hypoventilation, periodic leg movement, seizure, or

arrhythmias. Polysomnography was done while he was on cetirizine. Sleep diaries revealed an average nocturnal sleep time of 9 hours with no daytime napping.

After a review of his medications, cetirizine was discontinued, and the patient was started on fexofenadine for his allergic rhinitis. The frequency of his sleep terrors returned to his baseline. He was subsequently started on paroxetine, and his sleep terrors completely resolved. He did miss paroxetine for a week, and his sleep terrors returned but then resolved when he restarted his paroxetine.

## DISCUSSION

Parasomnias represent abnormal behaviors that arise from sleep. They range from subclinical events only noticed by a wakeful bed partner to violent, potentially life-threatening dream enactment. They are classified by the sleep state from which they arise: NREM sleep and rapid eye movement sleep.[1]

NREM parasomnias include confused arousals, sleepwalking, and sleep terrors. NREM parasomnias are characterized by abnormal nocturnal behavior, impaired consciousness, and autonomic nervous system activation because of impaired arousal. They typically arise from slow-wave (N3) NREM sleep.[1] Sleep terrors that may sometime be confused with nightmares are episodes of intense fear initiated by a sudden cry or scream and accompanied by increased autonomic nervous system activity.

Most commonly sleep terrors occur in preadolescent children. Parents describe the patient as being inconsolable during events. In adults, sleep terrors can involve impulsively bolting out of bed without proper judgment in response to an imminent threatening image or dream fragment.[1] Severe injury or even death may result from leaping out of bed or jumping through a window. Sleep terrors can last for more than 5 minutes, and attempts to abort an episode frequently result in even greater agitation. Children are more likely to have a memory of the sleep terror episode compared with adults.[5]

Several factors may contribute to sleep terrors, such as fever, stress, a traumatic life event, sleep deprivation, medications, alcohol abuse, and any disruptive factor during the N3 stage, such as obstructive sleep apnea and restless legs syndrome.

Parasomnias are typically diagnosed by obtaining a careful clinical history that assesses the timing, expression, and form of the behavior in the home environment. A sleep diary (to exclude sleep deprivation as a precipitant) and a partner's log of the events are useful tools. Referral to a specialist in sleep disorders should be considered for patients whose activities are potentially harmful or very disturbing to others or if polysomnography is required.

The first steps in the management of parasomnia are severity assessment, identifying and treating comorbid sleep disorders, eliminating presumed inducing agents, and maximizing environmental safety.

Most sleep terror episodes are benign and limited in duration. In these cases, patients may be given reassurance and are advised to avoid sleep deprivation and sedating agents. Situations that deserve more thorough investigation include violent behavior, nonviolent dangerous behavior (such as leaving the house), dream enactment behavior, or if the parasomnia is associated with symptoms suggestive of another sleep disorder or neuropsychiatric condition.[6]

Environmental safety is critical in treating parasomnia cases with the potential for sleep-related injury. The patient should be advised to remove any bedside furniture, firearms, and sharp objects (knife) and to keep windows locked with curtains drawn to prevent lacerations.

If NREM parasomnia persists despite the resolution of exacerbating disorders and removal of inducing agents, pharmacologic interventions may be considered. The most commonly prescribed agents include benzodiazepines and antidepressants. Benzodiazepine acts by increasing the chloride conductance through gamma aminobutyric acid receptors.[7] Clonazepam is commonly used as first-line pharmacotherapy; however, studies show conflicting results. Selective serotonin reuptake inhibitors are effective in the treatment of some NREM parasomnia, most commonly sleep terrors. Paroxetine appears to be particularly effective in the treatment of sleep terrors. In 1 report, 6 patients had a significant reduction if not outright elimination of sleep terrors. The authors suggested that selective serotonin reuptake inhibitors may be uniquely effective for sleep terrors through serotonin effects on terror centers in the midbrain peri-aquaductal gray matter.[8] The evidence for all therapies is currently based on a small number of studies, which are typically case reports and case series.

Cetirizine is a second-generation antihistamine that crosses the blood–brain barrier, has been previously associated with insomnia and nocturnal awakenings, and can cause tolerance with long-term use.[9] Cetirizine has very rarely been associated with either the onset or exacerbation of sleep terrors. In 1 previous case report, a 4-year-old patient with a 2-year history of sleep terrors had complete resolution of the sleep terrors after discontinuation of cetirizine and subsequent recurrence of sleep terrors after another reintroduction of cetirizine.[10] Although sleep terrors are a rare side effect of cetirizine, the exacerbation of this disorder can occur in patients taking cetirizine. In such cases, cetirizine should be discontinued.

## CONCLUSIONS

Acute exacerbation of sleep terrors in our patient was attributed to cetirizine because of the significant improvement in the frequency of symptoms after discontinuation of cetirizine. Our case highlights the importance of reviewing the patient medication list for possible side effects with acute worsening of parasomnias.

## ABBREVIATIONS

NREM, non–rapid eye movement

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## SUBMISSION & CORRESPONDENCE INFORMATION


**Submitted for publication April 16, 2020**
**Submitted in final revised form August 31, 2020**
**Accepted for publication September 1, 2020**


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## DISCLOSURE STATEMENT

All authors have seen and approved the manuscript. Work for this study was performed at Roanoke Memorial Hospital, Virginia Tech Carilion School of Medicine, Roanoke, VA. The authors report no conflicts of interest.